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REMARKS

Applicant has amended claim 3 and the specification. Applicant respectfully submits that the amendments to the claims and specification are supported by the application as originally filed and do not contain any new matter. Accordingly, the Final Office Action will be discussed in terms of the claims and specification as amended.

The Examiner has objected to the disclosure and pointed out a certain informality. Applicant has amended the disclosure and respectfully requests that the Examiner withdraw the objection.

The Examiner has objected to claim 3 and pointed out certain informalities. Applicant has amended claim 3 and respectfully requests that the Examiner withdraw the objection.

The Examiner has rejected claim 3 under 35 USC 112, second paragraph, as being indefinite. Applicant has amended claim 3 and respectfully submits that claim 3 now complies with 35 USC 112, second paragraph.

The Examiner has rejected claim 3 under 35 USC 103 as being obvious over Golick, stating that Golick discloses a mist supply mechanism for a rotary tool for supplying a mist under pressure to a rotary tool 32 disposed around a rotating shaft and implementing cooling and/or lubricating of the rotary tool 32 during the workpiece-machining, wherein the rotary tool 32, which is between the ring-like spacers 34, is disposed around an outer circumference of a sleeve with predetermined length circumferentially engaging the rotating shaft 20, a plurality of mist supply passages 74 are provided and said mist supply passages comprise passages perforated at a cylindrical section of the sleeve and extending in an axial direction and having one end communicating with a rotary coolant supply section and the other end being closed as a closed-end section, a plurality of passage ports radially perforating the cylindrical section of the sleeve with one end of each of the passage ports correspondingly communicating with the plurality of mist supply passages, a mist circulation groove provided on the ring-like spacers with the other end of the plurality of passage ports communicating with the mist circulation groove so that the mist circulation groove allows mist supplied from the plurality of passage ports to flow to the rotary tool, and the mist supplied from a mist supply section to the coolant supply section is supplied to the rotary tool through the plurality of mist supply passages 74, the plurality of passage ports 78 and the mist circulation groove 80 and although Golick discloses a

coolant supply that allows air to escape in order to prevent aspiration of ambient air, Golick discloses other embodiments wherein the coolant is supplied through a rotary seal and therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made that the rotary coolant supply of Fig. 3 may alternatively be replaced by the rotary seal section shown in Fig. 13, as long as aspiration of ambient air does not occur.

In reply thereto, Applicant has carefully reviewed Golick and respectfully submits that Fig. 3 shows a mist supply mechanism that supplies coolant to the rotary tools 32, which are provided between spacers 34, through supply passages that are referred to by the reference numerals 74, 76, 78 and 80. Attached hereto is a reference drawing to illustrate the differences between the present invention.

As seen from the reference drawing, in Golick the slots 74 are provided in the hollow mandrel end 36 so as to extend in the axial direction thereof and the tubular hub member 52 that is larger in diameter than the mandrel end 36 is fitted over the mandrel end 36 with an annular hub chamber 76 in between. In addition, hub slots 78 extend axially and are formed in the tubular hub member 52 so that they positionally correspond to the slots 74 of the mandrel end 36. In this structure of Golick, the fluid supplied from a mist source flows through the inside of the mandrel end 36 and reaches the annular hub chamber 76 through the slots 74 and it is then supplied to the spacers 34 through the hub slots 78 and further to the rotary tools in the form of a mist.

In contrast to Golick and as claimed in claim 3 of Applicant's application, in the cylindrical portion of the sleeve 16 that is fitted on the rotating shaft 10, mist supply passages 52 are provided in the axial direction of the reference sleeve 16 as is shown in the reference drawing. In addition, in the sleeve 16, a plurality of passage ports 40 each extending in the radial direction of the sleeve 16 are provided in the axial direction of the sleeve 16 and these passage ports 40 communicate with the mist supply passage 52 at one end and open in the outer surface of the sleeve at the other end. In this structure of Applicant's invention, the mist supplied from a mist supply source flows in the mist supply passages 52 in the axial direction of the sleeve 40 and is then exhausted out of the spacers 20 side thorough the passage ports 40 extending radially in the sleeve 40.

Based upon the above and as is shown in the attached reference drawing, there are patentable differences between Applicant's invention and Golick as follows:

1. In Applicant's invention, mist is supplied to the rotary tool via the mist supply passages 52 and the passage ports 40. In contrast thereto, in Golick, mist is supplied to the rotary tool via the hollow inside of the mandrel end 36, the slots 74, the annular hub chamber 76 and then the hub slots 78. As a result of this construction in Golick, there is a disadvantage over the present invention in that because of the plurality of spacers and slots, the flow resistance is high in Golick and thus irregularities in the mist supply amount are likely to occur.

2. If the rotating shaft 10 of the present invention and the mandrel end 36 of Golick were in a relation of correspondence to each other, then since the mandrel end 36 of Golick is hollow, and slots 74 are formed therein so as to axially extend, the mandrel end 36 is low in rigidity in Golick than the rotating shaft 10 of the Applicant's invention. In other words, Golick will have disadvantage of bending, twisting, etc. easily occurring in the mandrel end 36 which will result in deterioration in cutting accuracy of the rotary tool.

3. In Applicant's invention, a plurality of passage ports 40 are provided in the sleeve 16 so that they extend radially. In contrast thereto, in the hub member 52 of Golick, the hub slots 78 are provided and these hub slots 78 extend in the axial direction of the tubular hub member 52. Accordingly, as in the mandrel end 36 of Golick, the tubular hub member has the disadvantage of being lower in rigidity when compared to the sleeve 16 of Applicant's invention and vibrations, etc. would likely occur in the rotary tool mounted on the hub member 52, also affecting the cutting accuracy.

In view of the above, therefore, Applicant respectfully submits that claim 3 is not obvious over Golick.

In view of the above, therefore, it is respectfully requested that this Rule 116 Amendment be entered, favorably considered and the case passed to issue.

Please charge any additional costs incurred by or in order to implement this Rule 116 Amendment or required by any requests for extensions of time to KODA & ANDROLIA DEPOSIT ACCOUNT NO. 11-1445.

Respectfully submitted,

KODA & ANDROLIA

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